CLAIMS:

1. A method for service allocation among a plurality of entities requiring service allocation in a communications or computing environment comprising the steps of:

   a) initializing a supply of services of one or more holding entities;

   b) endowing one or more bidding entities with an adjustably fixed amount of utility and a requirement for an amount of said supply of services, wherein said fixed amount of utility is a measure representative of the possibility of failure due to lack of resources;

   c) negotiating said supply of services of said holding entities, with each bidding entity bidding a selected amount of its said fixed amount of utility;

   d) redistribution of said supply of said holding entities among said bidding entities based on said negotiating.

2. The method of Claim 1 wherein said supply of services is comprised of a plurality of resources.

3. The method of claim 2 wherein said plurality of resources are available at multiple service levels.

4. The method of claim 1 wherein said initializing, said endowing, said negotiating and said redistribution operate dynamically in response to a

change in said supply of services, said fixed amount of utility or said

requirement for said supply of services.

5.   The method of claim 1 wherein said redistribution of said supply

5   represents a guarantee of service.

6.   The method of claim 2 wherein said resources are one or more physical

devices.

10   7.   The method of Claim 3, wherein said multiple service levels includes

said resources available at varying levels of quality.

8.   The method of Claim 3, wherein said multiple service levels includes

said resources available at varying capacities.

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9.   The method of Claim 3, wherein said multiple service levels are

determined by resource sets.

10.   The method of Claim 1, wherein said redistribution is done

20   deterministically.

11.   The method of Claim 1, wherein said redistribution is done

statistically.

25   12.   The method of Claim 1, wherein said redistribution is based upon a

proportion of said supply held by said holding entity using a holding price.

13.   The method of Claim 12, wherein said proportion is described by the

formula:

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$$r_c (1 - P_c / P_b)^{exp}$$

14.   The method of claim 13, wherein exp=0.5.

15.   The method of Claim 1 wherein each said bidding entity is represented

by an agent.

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16.   The method of Claim 15 wherein each said supply of services is

represented by an agent.

17.   The method of Claim 16, wherein said holding entity is represented by

15   an agent.

18.   The method of claim 6 wherein said physical devices are a plurality of

telephones, telephone interface circuits, trunk interface circuits, telephone lines

and telephone switches for establishing or maintaining a voice or data

20   communication.

19.   A system for service allocation among a plurality of entities requiring

service allocation in a communications or computing environment comprising:

    a)   one or more holding entities having a supply of services;

b)   a plurality of bidding entities endowed with an adjustably fixed amount of utility and a requirement for an amount of said supply of services, wherein said fixed amount of utility is a measure representative of the possibility of failure due to lack of resources;

c)   a broker in communication with said holding entities and said bidding entities for negotiating said supply of said holding entities, with each bidding entity bidding a selected amount of its said fixed amount of utility;

wherein said holding entity provides redistribution of said supply among said bidding entities based on said negotiating.

20.   The system of Claim 19 wherein said supply of services is comprised of a plurality of resources.

21.   The system of claim 19 wherein said plurality of resources are available at multiple service levels.

22.   The system of claim 19 wherein said holding entities, said bidding entities and said broker operate dynamically in response to a change in said supply of services, said fixed amount of utility or said requirement for said supply of services.

23.   The system of claim 19 wherein said redistribution of said supply represents a guarantee of service.

24.   The system of claim 20 wherein said resources are one or more physical devices.

5   25.   The system of Claim 21, wherein said multiple service levels include said resources available at varying levels of quality.

26.   The system of Claim 21, wherein said multiple service levels including resources available at varying capacities.

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27.   The system of Claim 21 wherein said multiple service levels are determined by resource sets.

28.   The system of Claim 19, wherein said redistribution is done

15   deterministically.

29.   The system of Claim 19, wherein said redistribution is done statistically.

20   30.   The system of Claim 19, wherein said redistribution is based upon a proportion of said supply held by said holding entities using a holding price.

31.   The system of Claim 30, wherein said proportion is described by the formula:

$$r_c (1 - P_c / P_b)^{exp}$$

32.   The system of claim 31, wherein exp=0.5.

33.   The system of Claim 19 wherein each said bidding entity is represented

5   by an agent.

34.   The system of Claim 33 wherein each said supply of services is

represented by an agent.

10   35.   The system of Claim 34, wherein said holding entity is represented by

an agent.

36.   The system of claim 24 wherein said physical devices are a plurality of

telephones, telephone interface circuits, trunk interface circuits, telephone lines

15   and telephone switches for establishing or maintaining a voice or data

communication.